Koldwave®

KOMPAC SERIES AIR CONDITIONER AND HEAT PUMP INSTALLATION & OPERATION MANUAL

Koolette 7,000 Btu/Hr Cooling
7,800 Btu/Hr Heating

Kompac 9,400-16,000 Btu/Hr Cooling
10,900-17,900 Btu/Hr Heating

King Kompac 20,500-26,000 Btu/Hr Cooling
24,000-31,000 Btu/Hr Heating

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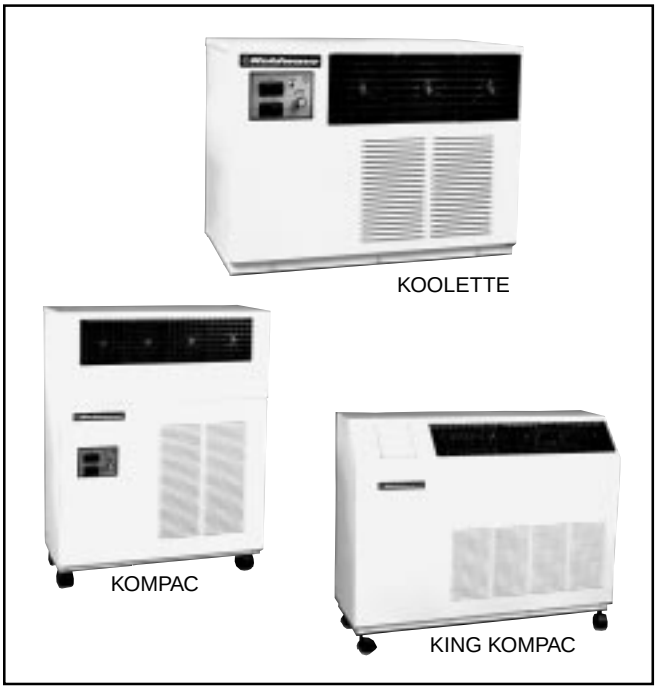

GENERAL INFORMATION

DESCRIPTION

Kompac Series Air Conditioners and Heat Pumps are designed for applications where outside air is not available and spot cooling is required. The cord connected Kompac Models range from a 7,000 Btu/Hr countertop to a 26,000 Btu/Hr floor mount configuration to meet any space requirements. Kompac and King Kompac models are provided with casters for portability.

All Models are completely self-contained with the entire refrigeration system, fan motor, water valve, and electrical components housed in a metal cabinet with a baked enamel finish. Only power and condenser water supply, water discharge, and condensate drain piping are required for installation. With the heat pump option, automatic changeover from cooling to heating to cooling provides the desired comfort, depending upon thermostat command.

The water-cooled condenser requires only that amount of water needed to achieve the desired high and low refrigeration system pressures. The condenser water flow rate for any entering water temperature can be obtained using the graph on page 8. Condenser water is regulated by a refrigeration system head pressure actuated water regulating valve.

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A MESTEK COMPANY

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

GENERAL REQUIREMENTS

For proper control of the water flow rate entering the automatic water valve, the minimum water pressure required for condenser water supply is 30 PSIG.

The condenser water temperature leaving the unit should not exceed 110°F. Ignoring this compliance will void the warranty on the refrigeration system. On heat pump models, it is not recommended to operate the unit in the heating cycle when the water inlet temperature is below 50°F. Doing so could reduce the specified heating capacity and may cause the freeze control to cycle the compressor off, resulting in a loss of heating.

IMPORTANT: Koldwave Air Conditioners have been designed and engineered with your comfort in mind. The length of service you can receive can be extended by following the installation and preventive maintenance instructions. It is important that the warranty card be filled out completely and returned to the factory within ten (10) days of installation of the unit in order to receive the benefits of the warranties.

CAPACITY SELECTION

Koldwave Kompac Series Air Conditioners and Heat Pumps are designed for any type of application with cooling requirements ranging from 7,000 Btu/Hr with the Koolette, 9,400 -16,000 Btu/Hr with the Kompac and 20,500-26,000 Btu/Hr with the King Kompac. Also heating requirements ranging from 7,800 Btu/Hr with the Koolette, 10,900-17,900 Btu/Hr with the Kompac and 24,000-31,000 Btu/Hr with the King Kompac. The Kompac Series cooling capacity designations are shown below.

Capacity Code:

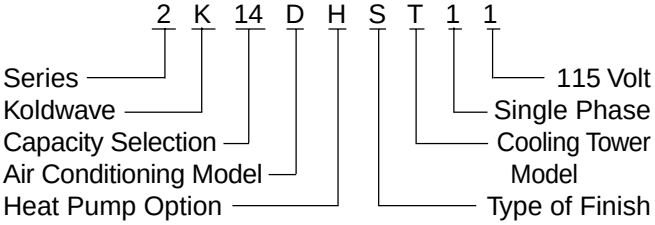
07	7,000 Btu/Hr
10	9,400 Btu/Hr
14	12,500 Btu/Hr
16	16,000 Btu/Hr
20	20,500 Btu/Hr
26	26,000 Btu/Hr

Kompac Model designations are:

Prefix K denotes ..... Koldwave Kompac Model
Suffix D denotes ..... Air Conditioning Model
Suffix H denotes ..... Heat Pump
Suffix T denotes ..... Unit for Cooling Tower Operation
Suffix S denotes ..... Stainless Steel Finish

KOLDWAVE NOMENCLATURE

The Koldwave Kompac Series nomeclature is listed below which explains the type of unit, the capacity, the phase, and the voltage.



Number Code: Phase: 1 - Single Ø

Voltage: 1 - 115V
2 - 208/230V

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

PRODUCT SPECIFICATIONS FOR KOMPAC SERIES

	2K07DB 2K07DBH	2K10DB 2K10DHB	2K14DB 2K14DHB	2K16DB 2K16DHB	2K20DB 2K20DHB	2K26DB 2K26DHB	2K26DBL 2K26DHBL
CAPACITY DATA							
Cooling Capacity (A)	7,000	9,400	12,500	16,000	20,500	26,000	23,200
Heating Capacity (B) & (D)	7,800	10,900	14,200	17,900	24,000	31,000	31,000
Evaporator-CFM @ 0.0 ESP	250	345	410	480	650	800	800
ELECTRICAL DATA							
Volts (Single Phase)	115	115*	115*	115*	208/230	208/230	208/230
Amperes (Cooling)	8.00	9.8	11.60	13.00	10.40/10.10	12.70/11.80	12.70/11.80
Amperes (Heating)	7.50	9.50	10.80	13.00	10.50/10.10	12.50/11.50	12.50/11.50
Watts (Cooling)	897	1,000	1,276	1,684	2,092	2,708	2,416
Watts (Heating)	840	1,065	1,301	1,692	2,269	2,839	2,839
E.E.R.	7.80	9.40	9.80	9.50	9.80	9.60	9.60
C.O.P.	2.70	3.00	3.20	3.10	3.10	3.20	3.20
Fuse/Breaker amps	15	15	15	20	15	20	20
Compressor H.P.	1/2	3/4	1	1 1/4	1 1/2	2	2
Blower Motor H.P.	1/25	1/15	1/15	1/15	1/7	1/7	1/7
In Rush Current (amps)	45.20	71.50	71.50	96.50	61.90	72.90	72.90
CONDENSATE PUMP							
Motor H.P.	1/80	1/80	1/80	1/80	1/77	1/77	1/77
RPM	3,000	3,000	3,000	3,000	3,000	3,000	3,000
Voltage	115	115*	115*	115*	208/230	208/230	208/230
Amperage Draw	0.48	0.48	0.48	0.48	0.26	0.26	0.26
Lift (Feet of H_2O)	11.00	11.00	11.00	11.00	11.00	11.00	11.00
CONDENSER WATER FLOW & PRESSURE DROP DATA (G)							
GPM @ 85° F L.W.T.	1.75	2.25	3.00	4.00	4.50	6.00	6.00
Cond. Coil ΔP (P.S.I)	1.40	1.70	3.00	5.30	4.20	6.80	6.80
Water Valve ΔP (P.S.I)	2.00	2.00	3.00	5.00	8.00	14.00	14.00
GPM @ 60° F E.W.T. 100° F L.W.T.	0.44	0.56	0.75	1.00	1.10	1.50	1.50
Cond. Coil ΔP (P.S.I.)	0.60	0.70	0.80	1.00	0.50	0.80	0.80
Water Valve ΔP (P.S.I.)	2.00	2.00	2.00	2.00	2.00	2.00	2.00
Max. Water Side Working Pressure/With Water Valve-150 P.S.I./Without Valve-400 P.S.I.							
MISC. DATA							
Evap. Coil-# of Rows	3	3	3	3	3	4	4
Coil Face Area (FT2)	0.83	1.05	1.20	1.20	1.90	1.90	1.90
Refrigerant Charge R-22 in oz.	14	18	20	22	26	30	30
Water Connections	3/8″ MF	3/8″ MF	3/8″ MF	3/8″ MF	3/8″ MF	3/8″ MF	3/8″ MF
DIMENSIONAL DATA (inches)							
(A) Height-With Casters	16 5/8	31 1/2	31 1/2	31 1/2	28 3/4	28 3/4	28 3/4
(B) Height-Without Casters	16 1/8	29 1/8	29 1/8	29 1/8	26 3/8	26 3/8	26 3/8
(C) Length	22 3/8	25	25	25	36	36	36
(D) Depth	12	10 3/16	10 3/16	10 3/16	12 1/4	12 1/4	12 1/4
AIR FILTER DATA (inches)							
Width	15 3/4	18	18	18	24	24	24
Height	9 1/4	16	16	16	11 3/4	11 3/4	11 3/4
Thickness	1/2	1/2	1/2	1/2	1/2	1/2	1/2
NET WEIGHT	83	123	124	125	175	183	183
SHIPPING WEIGHT	89	132	133	134	191	201	201

(A) Cooling Capacity Rating Test Conditions: Evaporator Air - 80°F D.B./67°F W.B.
Condenser Water - 85°F E.W.T./95°F L.W.T.

(B) Heating Capacity Rating Test Conditions: Condenser Air - 70°F D.B./60°F W.B
Evaporator Water - 70°F E.W.T.

(C) Time Delay Fuses and Circuit Breakers are recommended.

(D) Reverse cycle units require 50°F minimum water inlet temperature during the heating cycle.

(E) Total pressure drop for unit with Water Regulating Valve is sum of Condenser Coil and Water Valve Pressure Drop.

*Also available in 208/230 volt.

STANDARD AND OPTIONAL FEATURES

STANDARD FEATURES
All Kompac Series units have removable panels to provide full service accessibility. See Part Replacement Procedure on page 10 for removal of the correct panel when replacing a part.

Air Flow Flexibility
Air is discharged through four-way adjustable grilles, enabling a variety of air flow possibilities. Koolette, Kompac and King Kompac models each have three, four and five grilles respectively. Washable, aluminum air filters are installed in each unit. Periodic cleaning will ensure optimal unit performance. Kompac models have a reversible top for front or top air discharge.

Quiet, Rugged Cabinet
The Kompac Series cabinet, constructed of 20-guage, cold rolled steel with a baked enamel finish, is completely insulated with a sound absorbent material for cool, quiet comfort.

Automatic Water Valve
All air conditioners and heat pumps are equipped with a direct-acting, refrigeration system head pressure actuated water regulating valve. This valve, set at the factory for 95-100°F outlet water temperature, permits only that amount of water to flow that is needed to achieve the desired refrigeration system pressures. In addition, heat pump models are equipped with a water bypass solenoid valve to provide immediate and continuous water flow on heating. All models used for cooling tower operation, “T” models, are manufactured without water valves.

Safety Engineered
All units incorporate within the refrigeration system, a high pressure switch for maximum safety of the compressor. The cut-out pressure setting is 375 PSIG ± 3 PSIG. During the heating cycle of the heat pump models, a freeze control sensor set at 37 ± 2°F monitors the water temperature leaving the condenser to cut-out the unit and protect the condenser from freezing.

Reliable Controls
All models have self-contained thermostats to provide the desired amount of cooling, which can be selected by adjusting the thermostat to warmer or cooler. On heat pump units, when the thermostat is set at the desired position, the unit will automatically provide heating or cooling, whichever is desired.

The cooling only thermostat ranges from 60-95°F with a differential of ± 3°F. The range of the heat pump thermostat is 63-93°F in the cooling mode and 59.5-93.5°F in the heating mode with a differential of 3.5°F.

The three position rocker switch located in the control panel has three functions:
1. It provides fan only operation when depressed to right.
2. It turns the unit off when set in the center position.
3. It activates the cooling or heating mode when depressed to left, depending on unit model and thermostat setting.

The two position switch located under the three position switch provides high fan speed when depressed to the right, and low fan speed when depressed to the left.

When illuminated, the blue light above the thermostat indicates cooling and the amber light (on heat pumps only) indicates heating.

Built-In Condensate Pump
Each unit contains a condensate pump for the positive removal of evaporator condensate. The condensate pump is capable of pumping against an 11 ft. head.

Condenser Coil
The water-cooled, tube-in tube type condenser coil is designed for a maximum water side working pressure of 400 PSI.

Filter
All units are equipped with 1/2" thick, washable, aluminum mesh air filter located behind the front panel that can easily be removed and cleaned. Just pull the filter end cap tab at bottom of filter and slide out.

Discharge Air Grilles
The Koolette is equipped with three, the Kompac with four, and the King Kompac with five 5" x 5", four-way adjustable, plastic grilles located in the upper front panel, enabling a variety of air flow possibilities. Lift each black grille (approximately 3/4") and rotate to the desired position. Release the grille and allow it to return to the set position within the cabinet. By this means, air flow can be positioned in any of four directions.

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

Service Cord

The six ft. long service cords employed in the Kompac Series units have plug configurations and receptacle requirements as shown in the chart below.

ELECTRICAL SERVICE PLUG CONFIGURATION

Conditioner Model	Plug Configuration	Receptacle
2K07-14DB 115V	15A - 125V Nema 5 - 15P	Nema 5 - 15R
2K16DB 115V	20A - 125V Nema 5 - 20P	Nema 5 - 20 R
2K10-26DB 208/230V	20A - 250V Nema 6-20P	Nema 6 - 20R

OPTIONAL FEATURES

Hose Kit

When employing one of The 7′, 20′ or 40′ reinforced plastic HK22 hose kits in applications with water pressures exceeding 50 PSIG, a water pressure reducing valve must be installed in the water supply line prior to the hose kit; otherwise warranty of the hose kit will be void. The water-out and condensate lines of the three-section flexible plastic hose can be fed to a sink or permanent drain. Additional hose kit fittings and washers are provided to fit most water faucets. When using a hose kit, avoid sharp corners hot water pipes, and kinking or close bends to ensure proper water flow of the supply and return lines.

Cupro-Nickel Condenser

When using chemicals to treat water in cooling tower applications or when water contains process contaminants, it is recommended that the air conditioner be equipped with a 90/10 Naval Spec. Cupro/nickel condenser.

High Pressure Water Valve

High pressure water regulating valves, designed for use with up to 350 PSI water inlet pressure, are available.

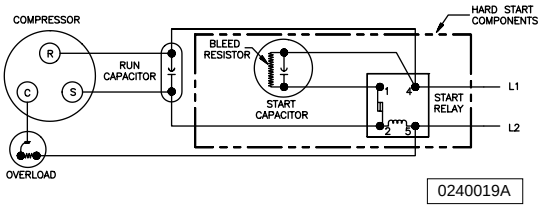
Treated Evaporator Coils

For air conditioning applications where airborne contaminants are a problem, acrylic coated evaporator coils are recommended to guard against pitting or corrosion.

Hard Start Kit

A hard start kit consists of a start capacitor and potential relay. The kit is available for all models when they are expected to operate at low voltages and/or ambient temperatures which drive up the equalization pressure in the compressor. Compressors used by Koldwave are designed to operate on 115 and 208/230 volts ± 10%.

Starting Component Wiring Diagram



KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

INSTALLATION INSTRUCTIONS

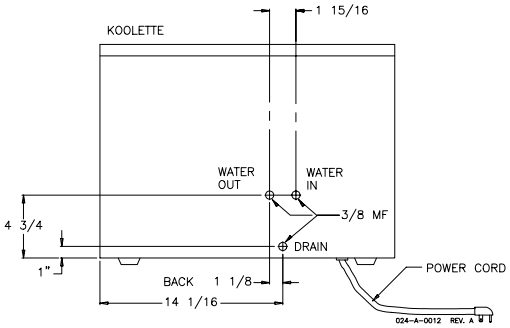
Before installing: Check the air conditioner for any shipping damage. Air conditioners are thoroughly inspected at the factory and carefully packed. If any damage is evident, file a claim with the delivering carrier immediately.

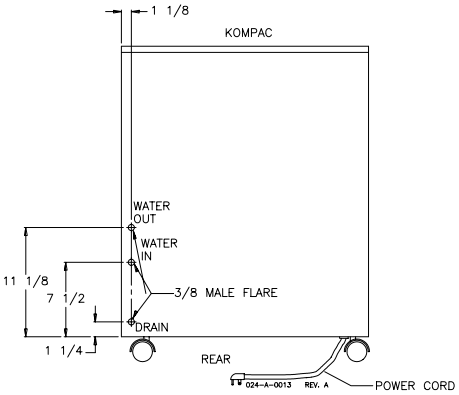
Electrical Requirements
Check the data plate on the back of the unit to make certain that the proper power is available. Refer to the "Specifications" section for voltage and fuse requirements. Check for proper wall outlet as described in "Standard Features". Operating the unit on improper voltages will void the warranty.

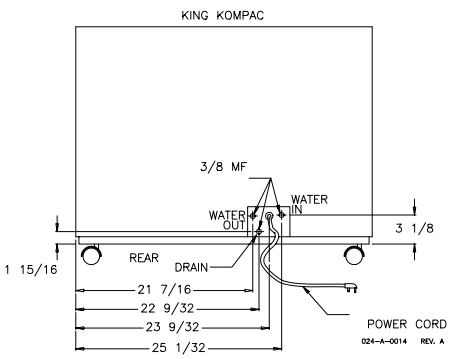
CAUTION: The use of an extension cord rated at least 15 amps at 115 volts for (2K07-14D); 20 amps at 115 volts for (2K16D); 20 amps for (2K10-26D) at 250 volts and with grounding-type attachment plug, and grounding-type connector (load fitting) may be used.

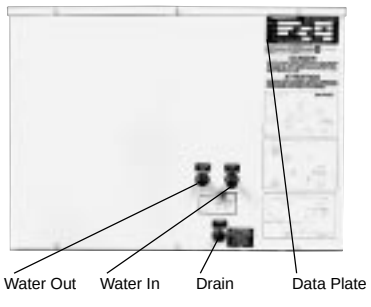
Water Fitting Location
Prior to placing the air conditioner in the desired position, note the exact location of the water fittings on the valve plate on the unit rear panel. Water lines should be securely attached to water valve plate fittings. Be sure the line attached to the water source is also attached to the "WATER IN" connection of the unit.

Refer to diagrams and photographs below when installing unit.



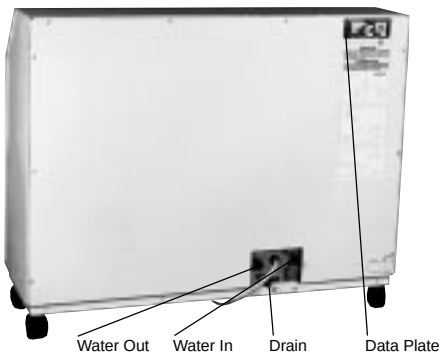






Koolette

Kompac



King Kompac

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

Conventional Installation
For proper installation, follow these simple steps:

A. Shut off cold water supply.

B. Install “T” between supply valve and faucet of cold water line.

C. Connect water shut-off valve to branch of “T”.

D. Insert 3/8" pipe nipple in discharge end of water shut-off valve.

E. Apply coupling over 3/8" pipe nipple and secure.

Note: An alternate installation method can be achieved by drilling a 5/16" diameter hole in the cold water line and assembling a saddle valve to the line. Complete installation by following steps “D” and “E”.

CHECKOUT OF UNIT OPERATION

Kompac Series air conditioners and heat pumps provide cooling and heating,respectively. This is accomplished by setting the operating controls on either of the following panels:

Fan Only
Plug unit in. Depress the upper mode selector switch to the right for fan only operation. Press down on the two position switch located below the three position switch to the right for high fan speed; to the left for low fan speed.

Cooling Cycle
Depress the upper mode selector switch to the left (cool) for cooling. Set the thermostat knob by turning it clockwise, below the actual room dry bulb temperature level. The blue-colored light located next to the upper rocker switch on the panel will illuminate, indicating cooling mode operation. Allow unit ot run with fan speed set on high for twenty minutes, record temperature of air entering the filter and temperature of air leaving the air discharge grille. In a room temperature of approximately 80°F dry bulb, air coming from the grille should be approximately 15°F cooler than the air going to the filter. This cycle reduces the dry bulb temperature and lowers the wet bulb temperature by condensing water on the cooling coil surface. The condenser leaving water temperature should be between 95-100°F if water flow adjusted propertly.

Heating Cycle
Depress the upper mode selector switch to the left (heat) for heating. Set the thermostat knob, by turning it counterclockwise, above actual room dry bulb temperature level. The amber-colored light located next to the upper rocker switch on the panel will illuminate, indicating heating mode operation. Allow unit to run with fan speed set on high for twenty minutes, record temperature of air entering the filter and temperature of air leaving the air discharge grille. In a room temperature of approximately 70°F dry bulb, air coming from the grille should be approximately 30°F warmer than the air going to the filter. The condenser entering water temperature must not be lower than 50°F. The temperature of the water coming from the “water out” fitting should be 7-8 degrees colder than the water going into the unit.

Water temperatures described for cooling and heating modes are based on units with pressure actuated water regulating valves installed as standard equipment at the factory.

Cooling Only Control Panel

Cooling/Heating Control Panel

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

WATER FLOWS AT VARIOUS ENTERING WATER TEMPERATURES

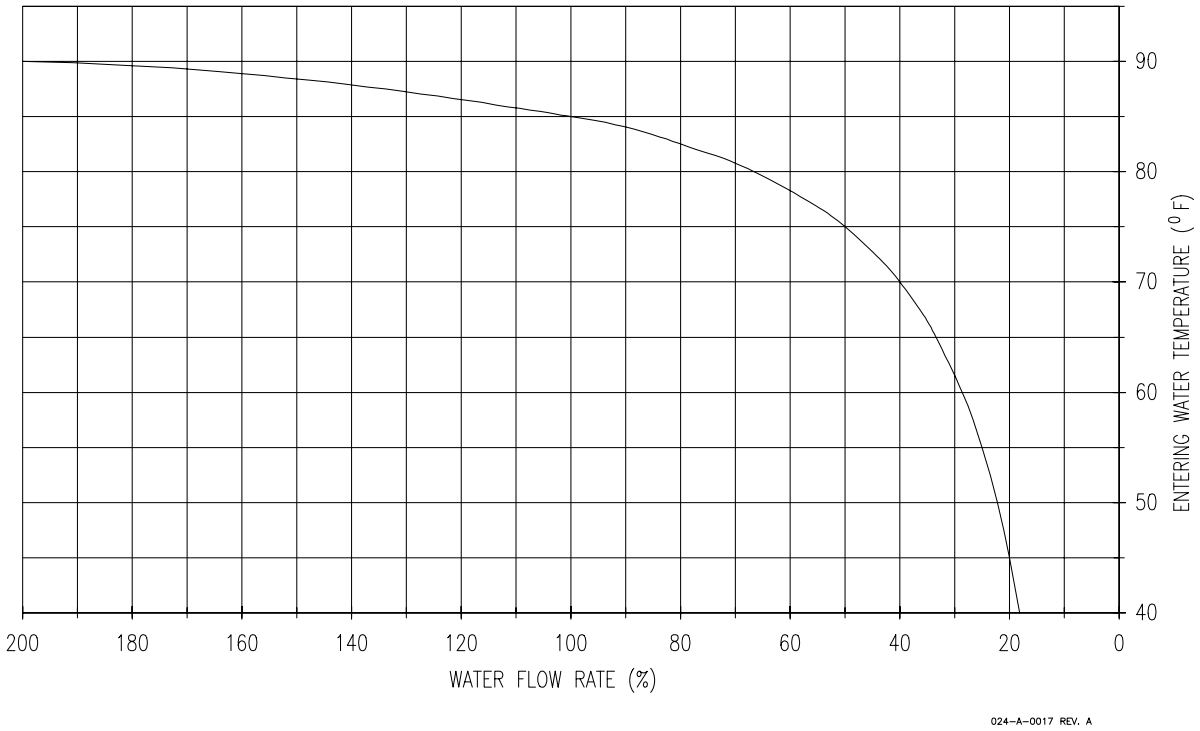
The rated water flow rate at 85°F entering water temperature (E.W.T.) is given in the specification chart earlier in this manual. Water flow rates in that chart will be significanly different from rated water flow at other entering water temperatures. The variance from rated water flow rate is found using the graph below. Using your actual E.W.T., multiply the percentage by the condenser flow rate at 85°F E.W.T. to obtain the actual water flow rate required.

For Example:

What is the actual condenser water flow rate at 50°F E.W.T. (2K14D)?

1. The condenser water flow rate at 85°F E.W.T. is 3.0 G.P.M. from the Water Flow chart.
2. At 50°F E.W.T., the water flow rate percentage would be 25% as seen on the graph.
3. Multiply .25 by 3.0 G.P.M. to get an actual water flow rate of 0.75 G.P.M.

Water Flow Chart



KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

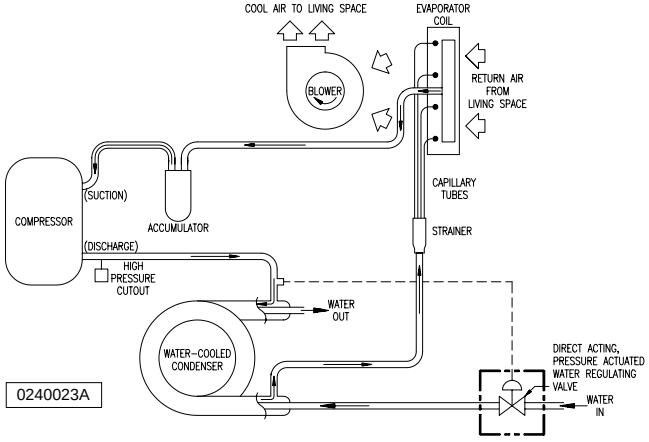
MODES OF OPERATION

Kompac Series conditioners are available in either a “Cooling Only” or “Cooling/Heating” Model.

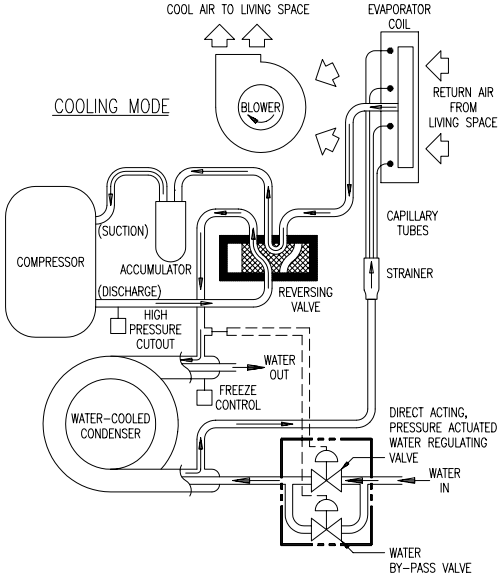
The “Cooling” mode directs refrigerant from the compressor to the water-to-refrigerant condenser when the dry bulb temperature is above the desired thermostat setting.

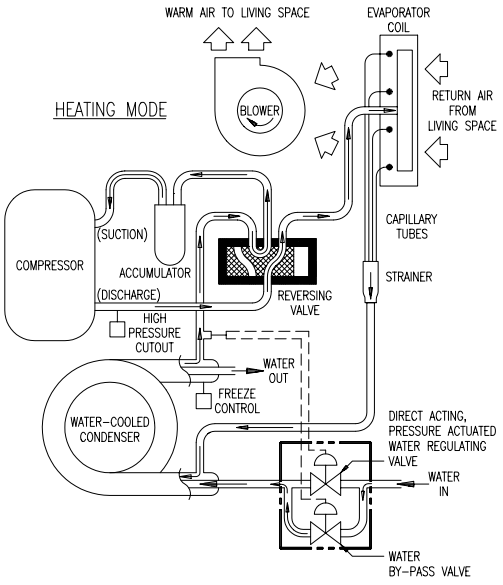
The Heat Pump Model operates in the cooling or heating modes, depending on thermostat command. A solenoid activated, reverse-cycle valve controls the flow of refrigerant gas through the unit. In the cooling mode, the solenoid is de-energized and the refrigerant is directed from the compressor to the water-to-refrigerant condenser. If heating is required, the solenoid coil is energized, reversing the cycle and directing refrigerant from the compressor to the air-to-refrigerant condenser, i.e., air-to-refrigerant evaporator in the cooling mode.

Cooling Only Unit



Heat Pump Unit

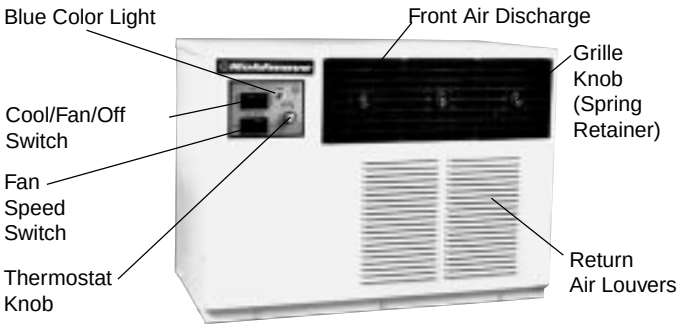


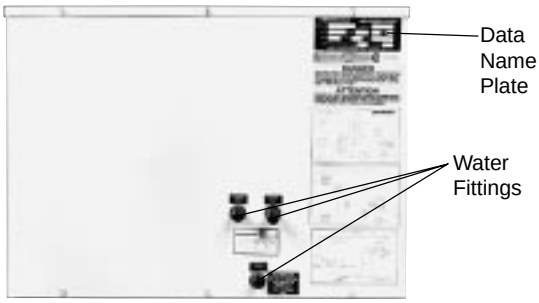


KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

UNIT CONSTRUCTION

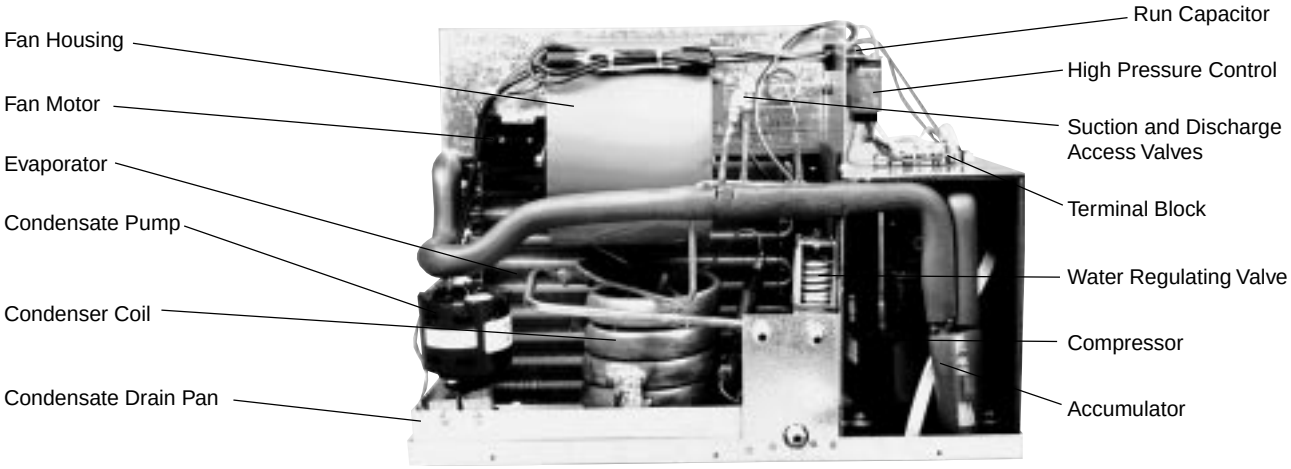
KOOLETTE





Cooling Only Unit Shown

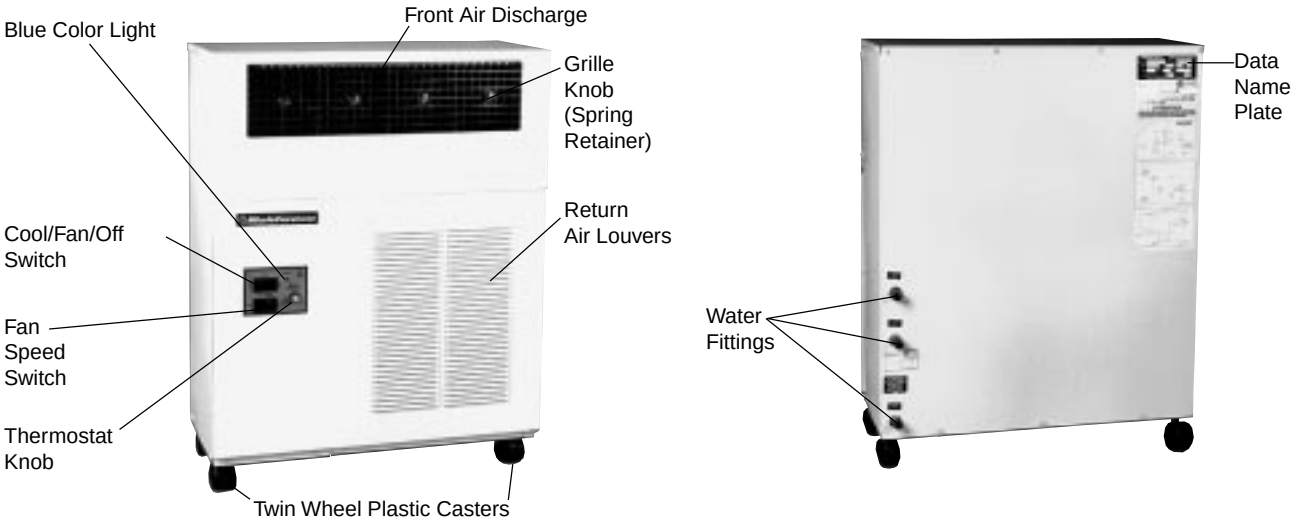
Air Conditioner Cutaway



KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

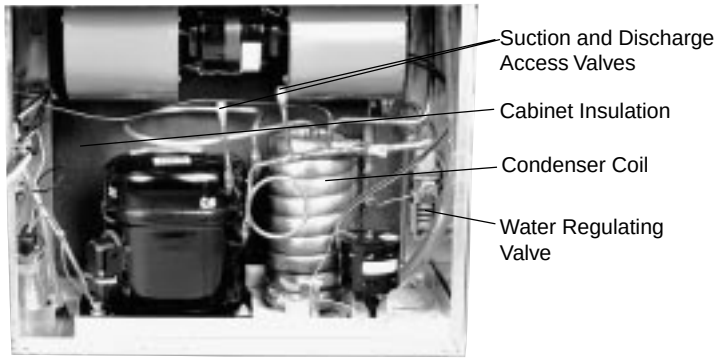
UNIT CONSTRUCTION

KOMPAC

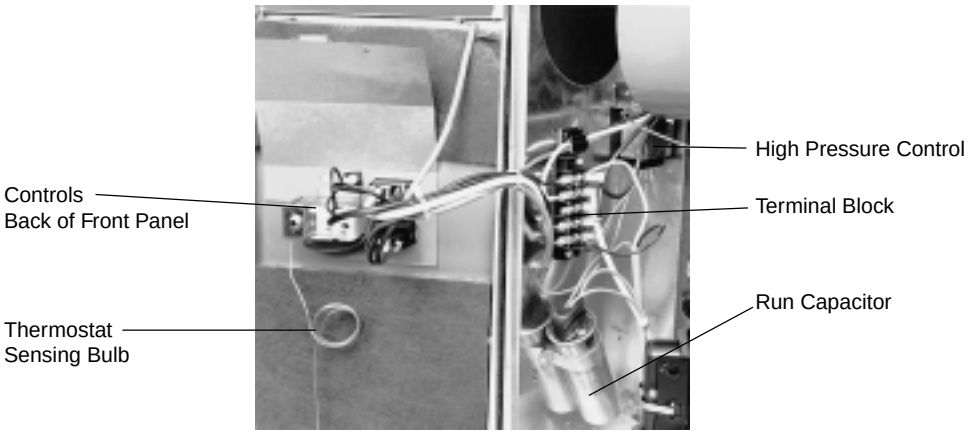


Cooling Only Unit Shown

Air Conditioner Cutaway



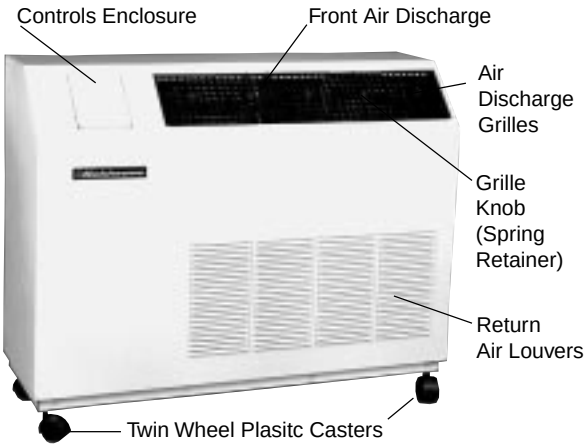
Control Panel Cutaway

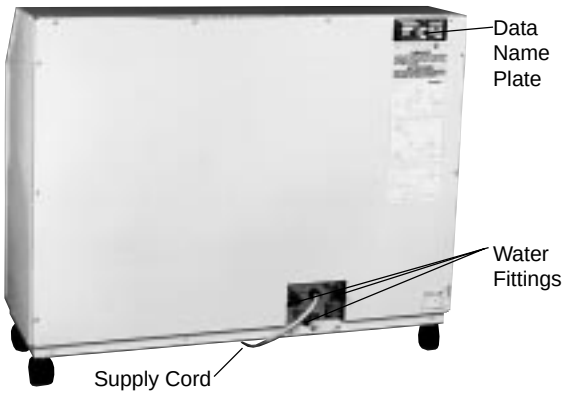


KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

UNIT CONSTRUCTION

KING KOMPAC





Air Conditioner Cutaway

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

PROCEDURE FOR PARTS REPLACEMENT

A. Fan Motor

1. Remove the entire cabinet on models K10, 14 and 16D. Remove discharge air grilles first. Sides and back are one piece, with screws located at bottom of cabinet.
2. For models K20D and K26D, remove cabinet back panel first. Sides, front and top are one piece with screws located on the bottom of the cabinet.
3. For all models, remove fan motor wires from terminal block and fan speed rocker switch. On Kompac and King Kompac models, remove screws from blower housings located by discharge of blower. Remove locknuts retaining motor to motor base. Remove motor, blower housings and blower wheels as an assembly. On model K07D, the cabinet is in two pieces. Remove front and top first, then back and sides. All screws are external and visible. Loosen set screw in blower wheel. Loosen clamp around motor housing and remove motor.
4. Install new motor, reversing the removing procedure.

B. Thermostat and Rocker Switches

1. For model K07D, remove return air grille and filter. Remove front-top panel and pull away towards left. Remove thermostat sensor bulb from clip. Disconnect wires from controls. Unscrew hex nut retaining thermostat. Remove wires from rocker switches, press down four positive-locking legs of rocker switches used for snap-in mounting and pull out. Replace controls and reverse above procedure.
2. For models K10, 14 and 16D, remove return air grille and filter. Take off panel on which controls are mounted by removing two screws on the left side of the unit by the corner, and two screws on the bottom of the control panel. Follow same removal procedure and controls replacement as described for Model K07D.
3. To replace thermostat and rocker switches on models K20-K26D, remove back and left side panels. Follow same removal procedure and controls replacement as described for Model K07D.

C. Pilot Light(s)

To remove pilot light(s) on all models, disconnect wires from controls, bend Tinnerman clip retaining light and pull out. Install new light, reversing the above procedure.

D. Condensate Pump

1. To replace condensate pump on models K07D, remove the entire cabinet. Disconnect pump wire leads from terminal block. Remove retainer clamp and tygon tubing. Replace pump, reversing the above procedure.
2. On models K10-16D, remove return air grille, filter and control panel. Disconnect pump wire leads from terminal block. Remove retainer clamp and tygon tubing. Replace pump, reversing the above procedure.
3. For models K20-26D, remove the back and right side panels only. Follow the same procedure as described for models K07-16D to replace pump.

E. Pressure Actuated Water Valve

1. Gain access as outlined above.
2. Disconnect sensing probe from Shrader valve on discharge line. Doing it quickly will minimize the amount of refrigerant loss.
3. Remove valve from mounting bracket.
4. Install new valve.

MISCELLANEOUS PARTS REPLACEMENT AND/OR ADJUSTMENTS

Part Name

A) High Pressure Control
B) Compressor Run Capacitor
C) Start Capacitor & Relay (if required)
D) Freeze Control
E) Terminal Block

Remove return air grille, filter and control panel on Kompac models; back panel on King Kompac models, top and front panels on Koolette models.

F) Compressor Overload

Remove return air grille, filter and control panel on Kompac models. Take off top/front panel on model K07D.

G) Reversing Valve
H) Reversing Valve Solenoid Coil

Remove front return panel on models K10-16D. Take off back panel on K20-26D. Remove entire cabinet on K07D.

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

ABC'S OF TROUBLESHOOTING

A. Read this manual to determine installation, electrical power, water pressure and flow requirements necessary to allow the air conditioner to perform at its maximum.

B. Refer to general description, wiring diagrams and photographs to get an understanding of how the unit functions.

C. Establish which part or parts controls the particular operation. Parts can be tested by the "bypass method", "the light method", or "the direct line method".

The "bypass method" would be used on switches, thermostats, overloads, or any part that completes an electrical circuit. A jumper wire is connected across the terminals of the suspected part. If the trouble is eliminated, the part shorted out is defective and must be replaced.

Motors, compressors and pumps can be tested by the "direct line method". A line cord with a series fuse is connected directly to the suspected part. The unit under test is then proved inoperative.

The "light method" utilizes a light bulb in the line cord, instead of the fuse as in #2. When this test is applied and the light bulb lights to full brightness, the part tested is shorted. No light indicates the circuit is open.

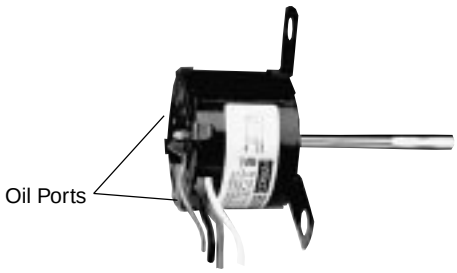
PREVENTATIVE MAINTENANCE

Kompac Series units have been designed to give maximum performance and reliability with minimum maintenance. Maintenance of the system is concentrated in three areas covered in the following paragraphs.

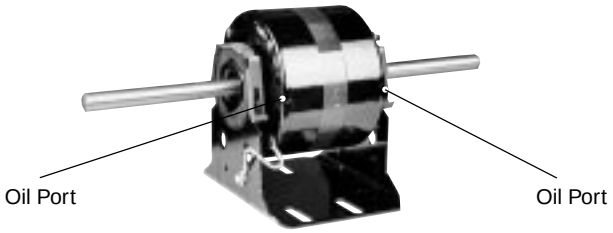
Blower Motor

The only required maintenance to the blower motor is to oil it every six months (every three months for King Kompac models with SAE20 non-detergent oil. On model K07D, remove the one piece front and top cabinet panel to reach the motor oil ports. On models K20-K26D, remove cabinet back panel to oil the motor. Take off the front louvered panel on models K10-K16D to gain access to fan motor oil ports.

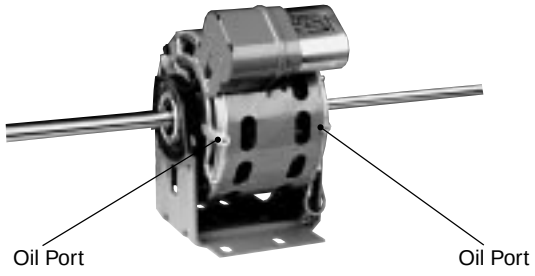
Koolette



Kompac



King Kompac



KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

Filter
The life of a filter depends entirely on its environment and use. It is recommended that the filter be inspected on a regular basis every five to six weeks. A clogged filter will cause the unit to operate at greatly reduced efficiency. Washable aluminum air filters located behind the front panel can easily be removed by pulling filter end cap at bottom of filter, slightly lifting up and pulling out. The filter must be washed periodically as needed this may be done as follows:

1. Soak in solution of warm water and detergent for 15 minutes.
2. Rinse in clean hot water, and shake excess moisture from filter.
3. Spray one side of filter with light film of oil.
4. Re-install with oiled surface facing out from unit.

Koolette

Kompac

King Kompac

Condensate Pump
To gain access to condensate pump, refer to "Procedure for Parts Replacement" section. **The pump motor requires oiling every six months** with SAE20 non-detergent oil. The pan beneath the condensate pump should be cleaned when mineral deposits are visible. A clean pan will prolong the life of the pump and its operation.

General
If necessary maintenance steps outlined above are carried out regularly, the unit will provide long and reliable service which you should expect from a Koldwave quality product. The refrigeration and electrical circuits of the system should only be serviced by a fully qualified service technician.

If you experience any problems or have comments on your Koldwave product, we are always pleased to hear from you. This is the main way in which we can improve our equipment and assist you in meeting your requirements.

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

TROUBLE SHOOTING GUIDE

Service other than routine maintenance should be performed only by a qualified refrigeration serviceman. In service troubleshoooting, there is no substitute for a good understanding of the Kompac Series modes of operation, control systems, components and safety systems.

PROBLEM	POSSIBLE CAUSE	REMEDY
The entire unit does not operate.	1. Power interruption.	1. Check external supply power. Check for blown fuses or tripped circuit breakers. Replace or reset if necessary.
	2. Thermostat not operating.	2. Setting may be too high; check unit and reset. Thermostat may be out of calibration or otherwise defective; replace. Also check for loose connection.
Fan runs but compressor does not start.	1. Low voltage.	1. Check power supply for proper voltage at unit; ± 10% of rated nameplate voltage.
	2. Thermostat.	2. Check the control unit for loose wires.
	3. Hi pressure or freeze control (heat pump models) tripping compressor.	3. Check for loose wire connection, broken or burned contacts. If switch is defective, replace.
	4. Refrigerant leak; no gas.	4. Locate leak, repair, evacuate and recharge unit.
	5. Loose or defective wires.	5. Tug on wires to see if they will separate from connections. Replace terminals if necessary.
	6. Stuck compressor.	6. Try a start capacitor across the run capacitor momentarily (three seconds).
	7. Compressor shorted, open or burned.	7. Check for shorts, opens and grounds. Remove and replace compressor.
	8. Shorted or open run capacitor.	8. Remove or replace.
	9. Defective thermostat.	9. Replace; check location of thermostat bulb. Make certain that it does not touch evaporator coil.
Compressor starts and runs, but fan does not run.	1. Faulty rocker switch.	1. Replace.
	2. Open fan motor coil circuit.	2. Replace fan motor.
	3. Shorted or open fan motor capacitor on King Kompac models.	3. Replace fan motors.
Insufficient cooling.	1. Improper sizing of unit.	1. Check if the unit is undersized for the load. Add supplemental unit(s).
	2. Insufficient air flow through evaporator due to:	2. Correct as follows:
	a) Dirty air filter in unit.	a) Clean filter (see “Preventative Maintenance” section of this manual.
	b) Dirty evaporator.	b) Unusual condition requires cleaning.
	c) Ice on evaporator coil.	c) Defrost; use fan only by depressing the upper rocker switch to right. Check for refrigeration leaks.
	d) Obstructed intake.	d) Remove obstruction.

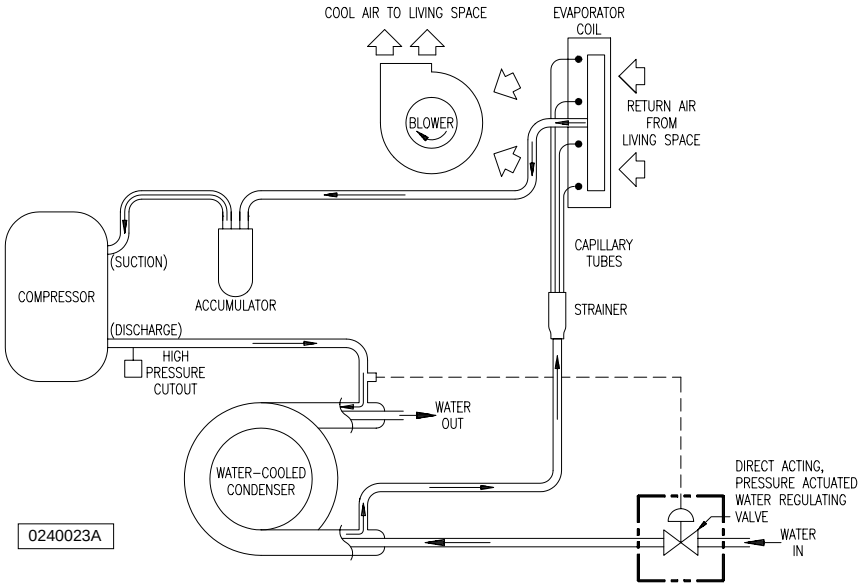
KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

PROBLEM	POSSIBLE CAUSE	REMEDY
Insufficient heating (heat pump models only)	1. Electric water bypass valve closed or not operating.	1. Check 115 volt circuit for power at valve. Also see if valve coil is open (use ohmmeter).
	2. Water inlet temperature too cold.	2. Check water inlet temperature using a thermometer. Inlet water temperature should never be below 50°F.
	3. Reverse cycle valve stuck open. Solenoid coil not switching valve to heating.	3. Check for power to solenoid coil, to verify that coil is functional. If the unit still does not switch to heating, replace reversing valve, evacuate and recharge unit.
	4. Thermostat not set for heating	4. Refer to “Check of Unit Operation” section.
	1. Loose connection in electrical circuit.	1. Trace and repair.
	2. Air restriction.	2. If air filter is dirty or if another air restriction exists, determine problem cause and control.
	3. Partial restriction in refrigeration system.	3. Restriction can be located by inspecting refrigerant lines for temperature changes. Remove restriction, evacuate and recharge.
	4. Water regulating valve inoperative or restricted.	4. Flush or blow dirty out of valve if necessary.
	5. Water temperature too high.	5. “Water Out” not to exceed 110°F.
	6. Water to unit not turned on, or adjusted correctly.	6. Turn water on before starting unit. Adjust flow rate if necessary.
Noisy operation.	1. Copper Tubing vibrating.	1. Adjust by bending slightly to firm position. Separate tubes touching cabinet or each other.
	2. Loose cabinet or internal component.	2. Check and tighten loose screws.
	3. Loose blower wheel.	3. Tighten screws on blower wheel to shaft.
	4. Machine vibrating out of level.	4. Level unit base.
	5. Blower motor bearing defective.	5. Replace blower motor.
	6. Blower wheel hitting housing.	6. Adjust wheel position on motor shaft.
Water leaking from unit.	1. Leaking drain pan.	1. Locate leak and repair.
	2. Defective condensate pump or excessive lift on pump.	2. Check to see if elevation is over 11 ft. (if it is over 11 ft., a larger pump is required). Otherwise, replace pump if defective. Pump will operate properly against 11 ft. of water total head pressure on pump. If combination of vertical height and horizontal drain line exceeds 11 ft. of water pressure drop, problem may occur.
	3. Loose evaporator drain or condensate pump hose.	3. Tighten connections.
Unit give electric shock.	1. Grounded electric circuit.	1. Test with an ohmmeter or high potential tester. Determine what is grounded and replace or rewire.

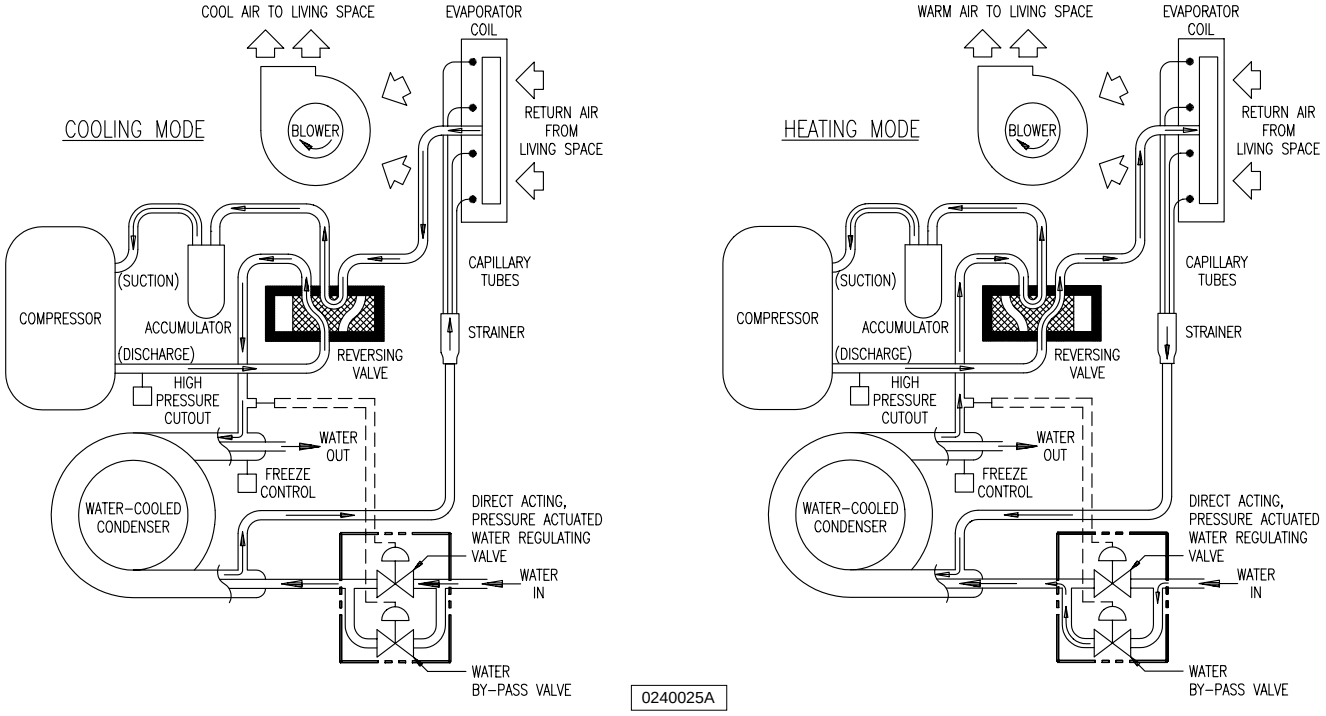
KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

PIPING SCHEMATICS

Air Conditioner



Heat Pump



KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

WIRING DIAGRAMS

HEAT PUMP

DWG NO. 079-C-227

REV	DATE	DESCRIPTION
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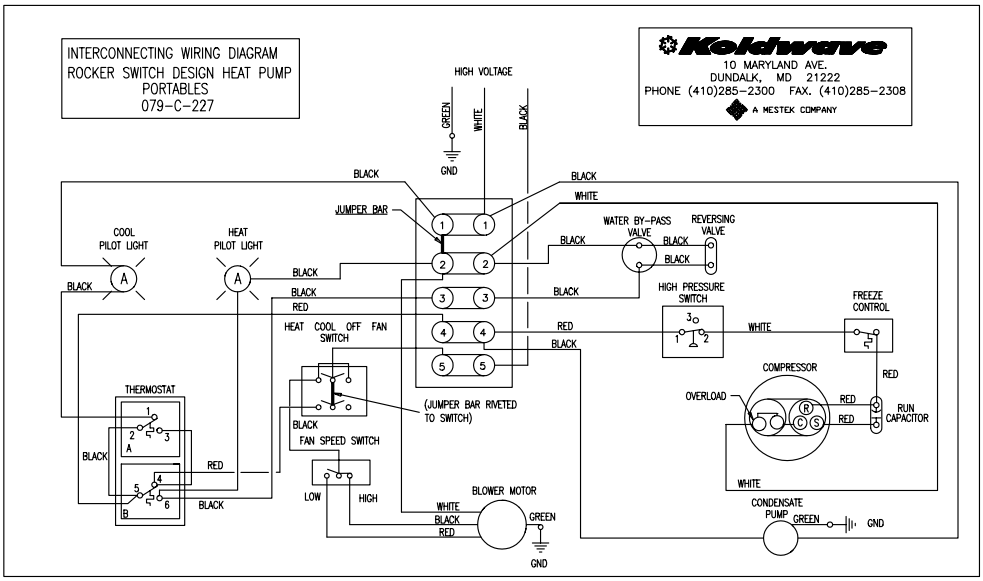

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	DRAWN BY: L.W.P. / APPR. BY:	DATE: 4/16/87	DWG NO. 079-C-227	REV. A

DWG NO. 079-C-224

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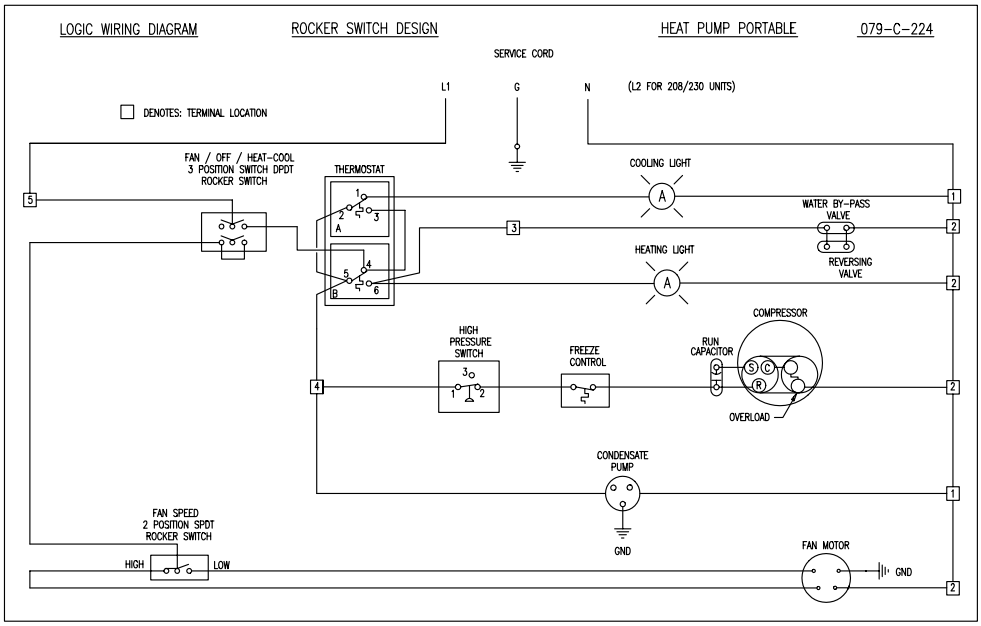
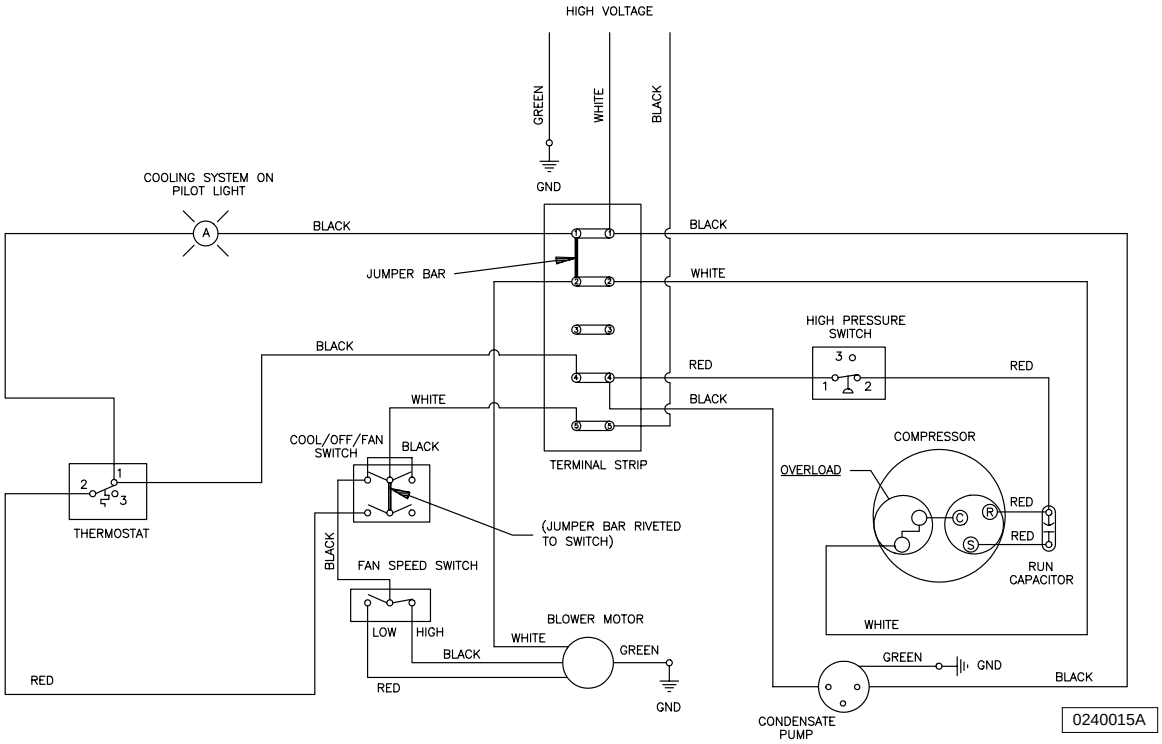


Koldwave A MESTEK COMPANY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE AS FOLLOWS: DECIMAL xx .03 xxx ±.015 ANGULAR ± 1°	MATERIAL: N/A	TITLE: LOGIC WIRING DIAGRAM	
		PAINT SPECS: N/A	UNIT: H/P PORTABLES	SCALE: NONE
	DRAWN BY: L.W.P. / APPR. BY:	DATE: 4/24/87	DWG NO. 079-C-224	REV. A

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

WIRING DIAGRAMS

AIR CONDITIONER



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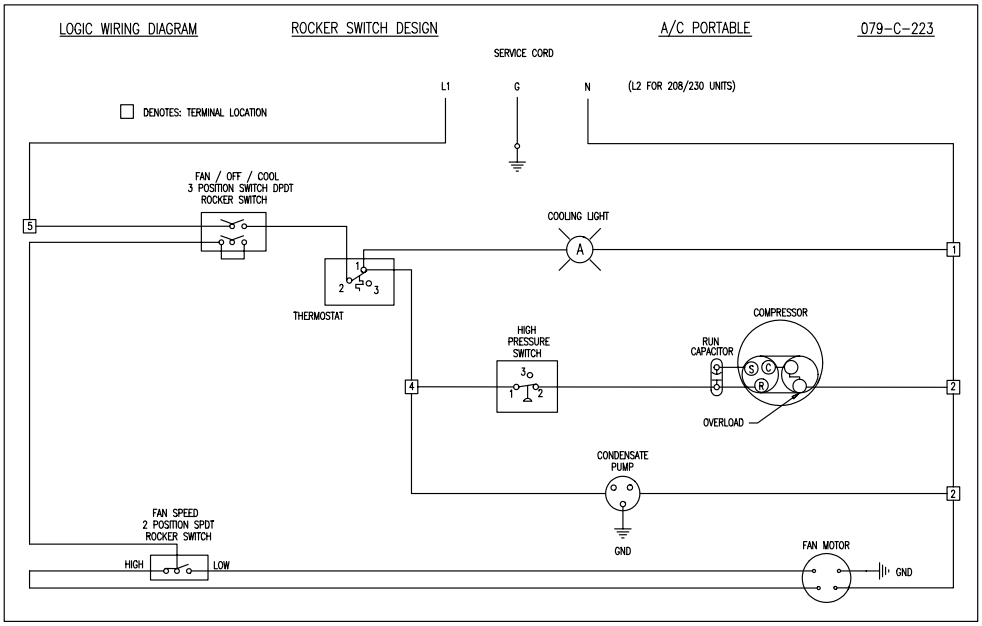

Koldwave — A MESTEK COMPANY	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES AND TOLERANCES ARE AS FOLLOWS: DECIMAL xx .03 xxx ±.015 ANGULAR ± 1°		MATERIAL: N/A	TITLE: LOGIC WIRING DIAGRAM	
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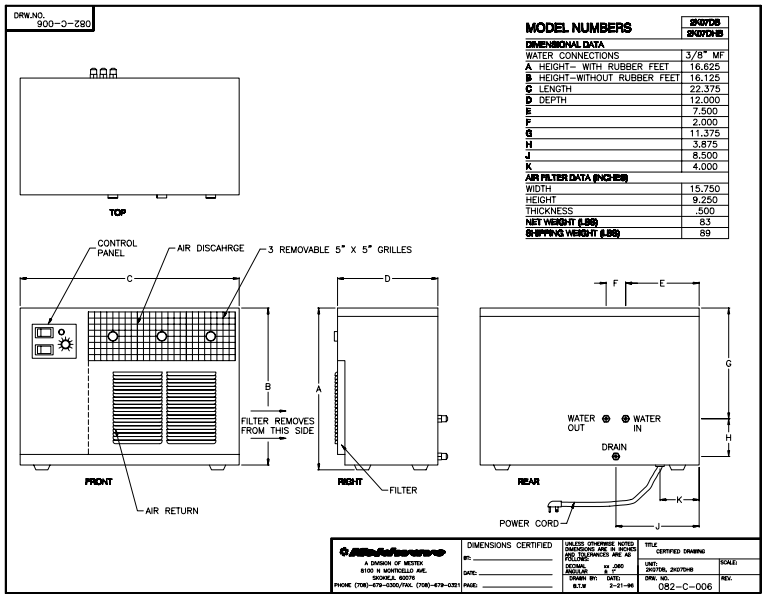
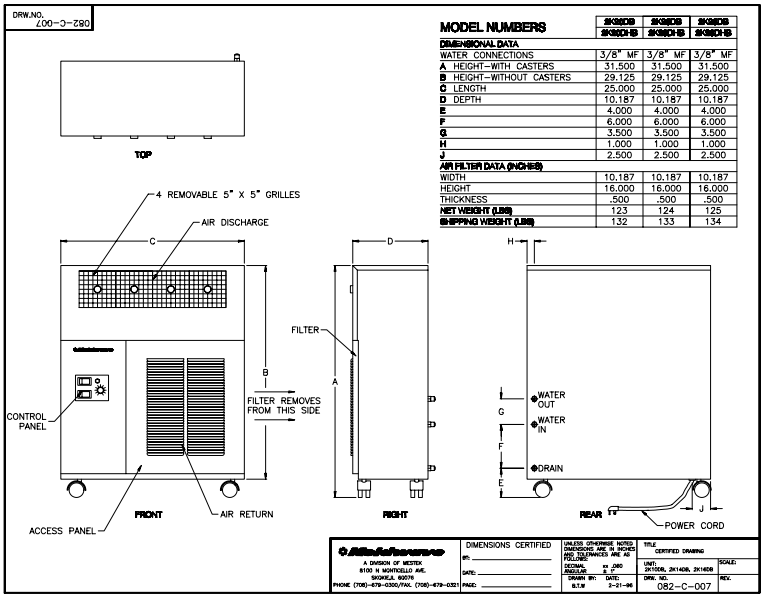
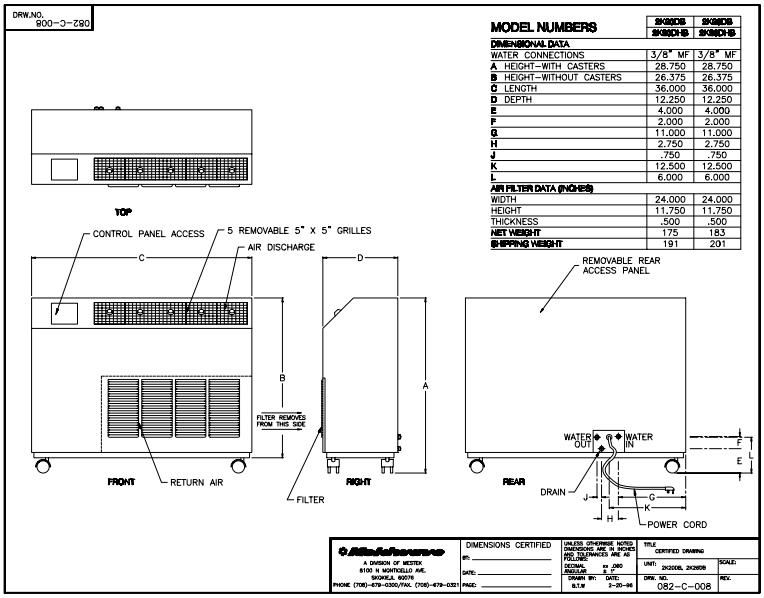
CERTIFIED DRAWINGS



MODEL NUMBERS	2K07DB 2K07DHB
DIMENSIONAL DATA	
WATER CONNECTIONS	3/8" MF
A HEIGHT– WITH RUBBER FEET	16.625
B HEIGHT–WITHOUT RUBBER FEET	16.125
C LENGTH	22.375
D DEPTH	12.000
E	7.500
F	2.000
G	11.375
H	3.875
J	8.500
K	4.000
AIR FILTER DATA (INCHES)	
WIDTH	15.750
HEIGHT	9.250
THICKNESS	.500
NET WEIGHT (LBS)	83
SHIPPING WEIGHT (LBS)	89



MODEL NUMBERS	2K12DB 2K12DHB	2K14DB 2K14DHB	2K16DB 2K16DHB
DIMENSIONAL DATA			
WATER CONNECTIONS	3/8" MF	3/8" MF	3/8" MF
A HEIGHT–WITH CASTERS	31.500	31.500	31.500
B HEIGHT–WITHOUT CASTERS	29.125	29.125	29.125
C LENGTH	25.000	25.000	25.000
D DEPTH	10.187	10.187	10.187
E	4.000	4.000	4.000
F	6.000	6.000	6.000
G	3.500	3.500	3.500
H	1.000	1.000	1.000
J	2.500	2.500	2.500
AIR FILTER DATA (INCHES)			
WIDTH	10.187	10.187	10.187
HEIGHT	16.000	16.000	16.000
THICKNESS	.500	.500	.500
NET WEIGHT (LBS)	123	124	125
SHIPPING WEIGHT (LBS)	132	133	134



MODEL NUMBERS	2K20DB 2K20DHB	2K26DB 2K26DHB
DIMENSIONAL DATA		
WATER CONNECTIONS	3/8" MF	3/8" MF
A HEIGHT–WITH CASTERS	28.750	28.750
B HEIGHT–WITHOUT CASTERS	26.375	26.375
C LENGTH	36.000	36.000
D DEPTH	12.250	12.250
E	4.000	4.000
F	2.000	2.000
G	11.000	11.000
H	2.750	2.750
J	.750	.750
K	12.500	12.500
L	6.000	6.000
AIR FILTER DATA (INCHES)		
WIDTH	24.000	24.000
HEIGHT	11.750	11.750
THICKNESS	.500	.500
NET WEIGHT	175	183
SHIPPING WEIGHT	191	201

KOLDWAVE KOMPAC SERIES (KOOLETTE, KOMPAC, AND KING KOMPAC)

LIMITED WARRANTY

The manufacturer warrants to the original owner that the Product will be free from defects in material or workmanship for a period not to exceed one (1) year from startup or eighteen months from date of shipment from the factory, whichever occurs first. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective.

The Manufacturer further warrants that the sealed refrigeration system (the product's compressor, condenser and evaporator) will be free from defects in materials and workmanship for five (5) years from date of start-up or sixty-six (66) months from date of shipment from the factory, whichever occurs first. If upon examination by the Manufacturer the Product is shown to have a defect in material or workmanship during the warranty during the warranty period, the Manufacturer will repair or replace, at its option, that part of the Product which is shown to be defective. Electrical parts (such as relays, overloads, capacitors, etc...) are included in the one year limited warranty but not with the five year limited warranty of the sealed refrigeration system.

This limited warranty does not apply:

(a) if the Product has been subjected to misuse or neglect, has been accidentally or intentionally damaged, has not been installed, maintained or operated in accordance with the furnished written instructions, or has been altered or modified in any way.

(b) to any expenses, including labor or material, incurred during removal or reinstallation of the Product.

(c) to any workmanship of the installer of the Product.

This limited warranty is conditional upon:

(a) shipment, to the Manufacturer, of that part of the Product thought to be defective. Goods can only be returned with prior written approval from the Manufacturer. All return must be freight prepaid.

(b) determination, in the reasonable opinion of the Manufacturer that there exists a defect in material or workmanship.

Repair or replacement of any part under this Limited Warranty shall not extend the duration of the warranty with respect to such repaired or replaced part beyond the stated warranty period.

THIS LIMITED WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESS OR IMPLIED, AND ALL SUCH OTHER WARRANTIES, INCLUDING WITHOUT LIMITATION IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY DISCLAIMED AND EXCLUDED FROM THIS LIMITED WARRANTY. IN NO EVENT SHALL THE MANUFACTURE BE LIABLE IN ANY WAY FOR ANY CONSEQUENTIAL, SPECIAL, OR INCIDENTAL DAMAGES OF ANY NATURE WHATSOEVER, OR FOR ANY AMOUNTS IN EXCESS OF THE SELLING PRICE OF THE PRODUCT OR ANY PARTS THEREOF FOUND TO BE DEFECTIVE. THIS LIMITED WARRANTY GIVES THE ORIGINAL OWNER OF THE PRODUCT SPECIFIC LEGAL RIGHTS. YOU MAY ALSO HAVE OTHE RIGHTS WHICH MAY VARY BY EACH JURISDICTION.

KOLDWAVE KOMPAC SERIES
SERVICE AND REPLACEMENT PARTS LIST

PART #	DESCRIPTION	K07	K10	K14	K16	K20	K26
STRAINERS							
010-A-049	STRAINER 750171-1	X	X	X	X		
010-A-050	STRAINER 750011-6					X	X
ASSEMBLIES,STRAINER & CAP TUBE							
SA010-A-060	STRAINER & CAP TUBE ASSY.	X					
SA010-A-061	STRAINER & CAP TUBE ASSY.		X	X	X		
SA010-A-062	STRAINER & CAP TUBE ASSY.					X	
SA010-A-063	STRAINER & CAP TUBE ASSY.						X
ACCUMULATORS							
010-A-058	ACCUMULATOR 118001-03	X					
010-A-052	ACCUMULATOR 137043-1		X	X	X		
010-A-051	ACCUMULATOR 162032-1					X	X
BLOWERS & BLOWER ACCESSORIES							
013-D-090	BLOWER HOUSING 50-5R	1	2	2	2		
013-A-039	BLOWER HOUSING 60-6					2	2
013-A-040	BLOWER WHEEL CW 5/16" BORE S47-25/25	1					
013-A-081	BLOWER WHEEL CW 1/2" BORE S47-25/25		1	1	1		
013-A-082	BLOWER WHEEL CCW 1/2" BORE S47-25/25		1	1	1		
013-A-041	BLOWER WHEEL CW 1/2" BORE S63-29/34					1	1
013-A-098	BLOWER WHEEL CCW 1/2" BORE S63-29/34					1	1
013-C-115	BLOWER RING 50-5R	2	4	4	4		
013-A-078	BLOWER RING 60-6					4	4
COMPRESSORS							
020-A-178	1/2 HP 115V. AE233AT	X					
020-A-186	3/4 HP 115V. AK149BT		X				
020-A-213	3/4 HP 230V. AK149ET		X				
020-A-179	1HP 115V. AK144AT			X			
020-A-180	1HP 230V. AK144ET			X			
020-A-154	1-1/4 HP 115V. AK147AT				X		
020-A-155	1-1/4 HP 230V. AK147ET				X		
020-A-223	1-1/2 HP 230V. AW103FT					X	
020-A-224	2 HP 230V. AW105FT						X
CASTERS							
021-A-026	CASTER PPN-05748 BLACK		X	X	X	X	X
ELECTRICAL COMPONENTS							
025-A-691	SOLENOID COIL REV. VALVE L30-320 115 V. HEAT PUMP	X	X	X	X		
025-A-692	SOLENOID COIL REV. VALVE L30-420 230 V. HEAT PUMP		X	X	X	X	X
025-A-031	SERVICE CORD 115V.	X					
025-A-468	SERVICE CORD 115V. 15 AMP		X	X			
025-A-469	SERVICE CORD 115V. 20 AMP				X		
025-A-470	SERVICE CORD 230V. 20 AMP		X	X	X	X	X
025-A-608	ROCKER SWITCH TIGM721 COOL/OFF/FAN	X	X	X	X	X	X
025-A-609	ROCKER SWITCH TIGB51 LOW/HI	X	X	X	X	X	X
025-A-585	AMBER LIGHT 3LF4LAN1 115V.	X	X	X	X		
025-A-610	AMBER LIGHT 3LF4LAN2 230V.		X	X	X	X	X
025-A-621	BLUE LIGHT 3LF4LB21 115V.	X	X	X	X		
025-A-622	BLUE LIGHT 3LF4LB22 230V.		X	X	X	X	X
019-A-063	MOUNTING CLIP FOR INDICATOR LIGHT	X	X	X	X	X	X
FILTERS/AIR							
030-A-034	9-1/8" x 15-3/4" x 1/2"	X					
030-A-041	15-7/8" x 18- 7/8" x 1/2"	X	X	X			
030-A-010	24" x 11-3/4" x 1/2"					X	X
EVAPORATORS							
013-A-077	3 ROW #1557	X					
031-A-092	3 ROW #1128		X				
031-A-076	3 ROW #1522			X	X		
031-A-094	3 ROW #1186					X	
031-A-127	4 ROW #2229						X

PART #	DESCRIPTION	K07	K10	K14	K16	K20	K26
CONDENSERS							
SA031-A-130	CONDENSER ASSY. 1/2 ROW	X					
SA031-A-131	CONDENSER ASSY. 1 ROW		X	X	X		
SA031-A-153	CONDENSER ASSY. RECTANGULAR					X	
SA031-A-154	CONDENSER ASSY. RECTANGULAR						X
031-A-084	CONDENSER (HEAT PUMPS)					X	X
* When ordering condensers, please specify model and serial number of the unit							
GRILLES							
SA038-D-013	AIR DISCHARGE 5" x 5" PLASTIC	X	X	X	X	X	X
076-A-921	SPRING CLIP	X	X	X	X	X	X
MOTORS/BLOWERS							
050-A-097	BLOWER MOTOR 115V. 7163-7481	X					
050-D-039	BLOWER MOTOR 115V. 7108-5262		X	X	X		
050-A-056	BLOWER MOTOR 230V. DE2E075N		X	X	X	X	X
PUMPS, CONDENSATE							
050-A-105	CONDENSATE PUMP MOTOR 115V. 7121-4633	X	X	X	X		
050-A-106	CONDENSATE PUMP MOTOR 230V. 7121-4634		X	X	X	X	X
SA035-A-004	PLASTIC PUMP HOUSING (LESS MOTOR)	X	X	X	X	X	X
057-A-020	CONDENSATE PUMP IMPELLER	X	X	X	X	X	X
SA057-A-021	CONDENSATE PUMP ASSY. 115V.	X	X	X	X		
SA057-A-022	CONDENSATE PUMP ASSY. 230V.		X	X	X	X	X
CONTROLS							
041-A-015	THERMOSTAT CONTROL KNOB	X	X	X	X	X	X
066-A-059	FREEZE CONTROL A30-1700-37 (HEAT PUMPS)	X	X	X	X	X	X
066-A-061	HI PRESSURE SWITCH AP27-1033	X	X	X	X	X	X
066-A-098	THERMOSTAT C12-2027 (COOLING ONLY)	X	X	X	X	X	X
066-A-099	THERMOSTAT C17-2025 (HEAT PUMP)	X	X	X	X	X	X
CAPILLARY TUBES							
067-D-117	.070 ID x 60" LONG CAP. TUBE	1				3	
067-A-103	.070 ID x 40" LONG CAP. TUBE		1	1	1		
067-A-121	.064 ID x 40" LONG CAP. TUBE						3
VALVES							
068-A-157	WATER VALVE 3/8 V46AA-41	X	X	X	X	X	X
068-A-069	REVERSING VALVE V26-158 (HEAT PUMPS)	X	X				
068-A-183***	REVERSING VALVE V2-308 (HEAT PUMPS)			X	X	X	X
068-A-007	WATER BYPASS S30-115V.	X	X	X	X		
068-A-008	WATER BYPASS S30-230V.		X	X	X	X	X
068-A-009	RELIEF VALVE-HENRY #5220 (CHICAGO ONLY)	X	X	X	X	X	X
068-A-031	CHARGING VALVE STEM	X	X	X	X	X	X
*** When ordering # 068-A-183, a new solenoid coil must also be ordered with the replacement valve							
ASSEMBLIES/CABINET (CABINET ASSY., LESS GRILLES)							
076-C-2189	TOP/FRONT PANEL	X					
076-C-1060	BACK/SIDES WRAPPER	X					
CABINET ASSY., LESS GRILLES							
076-C-1043	TOP/FRONT PANEL		X	X	X		
076-C-1046	BACK/SIDES WRAPPER		X	X	X		
076-C-2188	ELECTRICAL CONTROL PANEL		X	X	X		
076-B-1044	RETURN AIR GRILLE		X	X	X		
CABINET ASSY., LESS GRILLES							
076-C-1080	TOP/FRONT PANEL					X	X
076-C-1081	BACK PANEL					X	X
076-C-1480	LEFT PANEL					X	X
076-C-1082	RIGHT PANEL					X	X
MP076-A-1085	CONTROLS COVER					X	X
*** Unit front is panel with Koldwave logo***							
MISCELLANEOUS							
040-A-002	HOSE KIT ADAPTERS FOR HK22-7, 20, & 40	X	X	X	X	X	X